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1. What is a computer system?

A computer system is machine that can store and use data

2. What are some of the parts of a computer system?

A computer system is made up of things like a central processing unit, memory storage, and input and output devices that can be used by humans.

3. What is the difference between a compiled language and an interpreted language?

Compiled languages translate the entire program into machine language and output an executable program. Whereas with an interpreted language, the computer takes the program and follows instructions line by line.

4. Is C a compiled language?

Yes. We use GCC to compile it into a program that we can click to run completely.

5. Who invented the C language?

C was invented by Dennis Ritchie.

6. How long has C been in use?

C has continuously been in use since it was invented in 1972.

7. Is a compiler a translator?

Yes, it translates high level languages (C++, Python, etc) into assembly code

8. Is an assembler a translator?

Yes, it translates assembly to machine code

9. What is the command to list out the contents of a directory on a mac terminal window?

The command is "ls".

10.	What does the C function **atof()** do?

atof() converts a string to a floating point value(decimal).

11.	What are the bottom two layers of a computer system? Give a brief description of each.

Layer 0 is the **Digital Logic** layer, AKA the hardware layer. It consists of hardware such as gates and circuits.

Layer 1 is the **Control** layer, AKA the firmware layer. It consists of microcode that is embedded into hardware that makes them operable.

12.	What are the three steps of the Von Neumann Architecture?

Fetch, decode, and execute.

13.	What is the purpose of an ALU?

The ALU's function is to complete arithmetic and logical operations it receives from program code.

14.	What is a register?

A register is a storage unit that contains the next instruction's address.

15.	What is one difference between Application software and System software?

One caters to humans, while the other one caters to machines. Applications are centered around human problem, while system focuses on data transfer, reading files, compiling, linking, etc.

16.	Is the phrase **cmp rdi, rsi** machine language?

No, this is assembly code. Machine code only contains binary values.

17.	How many buses are included in the system bus?

Three - the data bus, address bus, and the control bus.

18.	What is the decimal value of 10010111(base 2)?

128 + 16 + 4 + 151.

19. What is the decimal value of 11111111(base 2)?

128 + 64 + 32 + 16 + 8 + 4 + 2 + 1, or 255.

20. What is the largest unsigned integer value that will fit into 16 bits?

$2^{15} + 2^{14} + \ldots + 2^1 + 2^0 = 65535$.